

The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte NICOLE SCHODEL,
MANFRED SOTZEK,
WOLFGANG SUSSMANN and
ROLAND WALZL

Appeal 2006-2359
Application 09/931,177
Technology Center 1700

Decided: February 21, 2007

Before CHUNG K. PAK, PETER F. KRATZ and LINDA M.
GAUDETTE, *Administrative Patent Judges*.

PAK, *Administrative Patent Judge*.

REMAND TO THE EXAMINER

This is a decision on an appeal under 35 U.S.C. §134 from the Examiner's final rejection of claims 1, 3 through 10, and 25 through 35, all of the claims pending in the above-identified application. We have jurisdiction pursuant to 35 U.S.C. § 6.

Claims 1, 3 through 10, and 25 through 35 on appeal define a heat exchanger-type reactor having catalysts. Details of the catalytic reactor are set forth in representative independent claims 1, 32, and 34 which read as follows:

1. A reactor for performing a heat-conditioned catalytic reaction in a process fluid, said reactor comprising: plates that are arranged parallel to one another at a distance and that form flat channels with lateral boundary areas that face one another, wherein a portion of said channels contain a solid catalyst and carry a process fluid, and another portion of said channels carry a heat transfer medium in indirect heat contact with the process fluid, wherein said plates are flat or are provided with grooves or ribs and are coated at least partially with a catalyst on the surface that faces the process fluid, and

wherein said lateral boundary areas are jacket pieces, which form a pressure-resistant cuboid block with said channels, plates, and with collectors for the process fluid and for the heat transfer medium, and said reactor is capable of operating at process fluid and heat transfer medium pressures of more than 25 bar.

32. A reactor for performing a heat-conditioned catalytic reaction in a process fluid, said reactor comprising: plates that are arranged parallel to one another at a distance and that form flat channels with lateral boundary areas that face one another, wherein a portion of said channels contain a solid catalyst and carry a process fluid, and another portion of said channels carry a heat transfer medium in indirect heat contact with the process fluid, wherein said lateral boundary areas are jacket pieces, which form a pressure-resistant cuboid block with said channels, plates, and with collectors for the process fluid and for the heat transfer medium, and

said reactor is capable of operating at process fluid and heat transfer medium pressures of more than 25 bar.

34. A reactor for performing a heat-conditioned catalytic reaction in a process fluid, said reactor comprising: plates that are arranged parallel to one another at a distance and that form flat channels with lateral boundary areas

that face one another, wherein a portion of said channels contain a solid catalyst and is in fluid communication with a source of process fluid, and another portion of said channels is in fluid communication with a source of a heat transfer medium and is in indirect heat contact with said process fluid, wherein said plates are flat or are provided with grooves or ribs and are coated at least partially with a catalyst on the surface that faces the process fluid, and

wherein said lateral boundary areas are jacket pieces, which form a pressure-resistant cuboid block with said channels, plates, and with collectors for the process fluid and for the heat transfer medium, and said reactor is capable of operating at process fluid and heat transfer medium pressures of more than 25 bar.

The Specification explains the advantage of the limitations recited in claims 1, 32, and 34 as follows (page 5):

In an embodiment of the reactor according to the invention, advantageously the lateral boundary areas can be designed as jacket pieces, which form a pressure-resistant cuboid block with channels formed by the plates and collectors for the process fluid and for the heat transfer medium. An advantage of this embodiment is that the reactor can be operated, both on the process fluid side and on the heat transfer medium side, at operating pressures of more than 25 bar[s].

However, the Specification does not state how the jacket pieces, plates and collectors are bonded together to form a pressure-resistant cuboid block capable of operating at a pressure of more than 25 bars. *See* the Specification in its entirety. Nor does the Specification define the meaning of “cuboid block.” *Id.*

The Examiner has finally rejected the claims on appeal as follows (Answer 3-6):

- 1) Claims 1, 5 through 10, 26 through 29, and 32 through 35 under 35 U.S.C. § 103(a) as unpatentable over the disclosure of U.S. Patent 6,168,765 issued to Romatier et al on January 2, 2001 (hereinafter referred to as “Romatier”); and
- 2) Claims 3, 4, 25, 30 and 31 under 35 U.S.C. § 103(a) as unpatentable over the combined disclosures of Romatier and U.S. Patent 5,031,693 issued to VanDyke on July 16, 1991(hereinafter referred to as “VanDyke”).

Although the Examiner has included only Romatier and VanDyke in the statements of rejection, the Examiner has also referred to other prior art references in the body of the rejections at pages 5, 7, and 8 of the Answer and listed the other prior art references below the “Evidence Relied Upon” section of the Answer. Therefore, it is not clear from the record whether the Examiner has intended to exclude or rely on the other prior art references in support of his rejections.

At page 4 of the Answer, the Examiner has further referred to “ASME design requirement” to support the position that “conventional plate-type reactor has boundary jacket pieces or plate closures to fasten and seal the plate channels together....” The Examiner, however, has not identified any prior art references or taken official notice to support the prior art status of the “ASME design requirement.”

In response to the Examiner’s rejections, the Appellants assert (Br. 4-5) that:

... Appellants’ claims recite that the reactor has lateral boundary areas which are jacket pieces, and that these jacket pieces, together with the channels, plates, and collectors, form a pressure-resistant cuboid block....

....

... The lateral areas of the reactor embodiment disclosed by US '765 are distributors/collectors, not jacket pieces. Thus, US '765 provides no disclosure or suggestion of lateral boundary areas that are jacket pieces, and which form a pressure-resistant cuboid block together with channels, plates, and collectors.

To address this assertion, the Examiner must necessarily define the meanings of the phrases “cuboid block” and “lateral boundary areas are jacket pieces, which form a pressure-resistant cuboid block with said channels, plates, and with collectors...” recited in claim 1. However, we cannot ascertain from the Answer the meanings of these claim limitations. Specifically, the Examiner has not clearly explained in the Answer:

- 1) Why the phrase “cuboid block” encompasses the structure described in Romatier; and
- 2) Why and how the phrase “lateral boundary areas are jacket pieces, which form a pressure-resistant cuboid block with said channels, plates, and with collectors....” encompasses the structure illustrated in Romatier’s Figure 1 (The Examiner, for example, has not explained how many lateral jacket pieces and collectors are included as part of the claimed pressure-resistant reactor walls).

Upon return of this application to the Examiner’s jurisdiction, the Examiner must:

- 1) Define the claim limitations in question and explain how and why they embrace the reactor structure described by Romatier;
- 2) Identify clearly the prior art references relied upon to reject the claims on appeal in the statements of rejection; and
- 3) Identify clearly the source supporting the prior art status of the “ASME design requirement” in the statements of rejection. Any prior art references

Appeal 2006-2359
Application 09/931,177

not referred to in the statements of rejection will be presumed to be withdrawn

This application, by virtue of its special status, requires immediate action by the examiner. *See* MPEP § 708.01(d). The Board of Patent Appeals and Interferences must be informed promptly of any action affecting the appeal in this case, including reopening of prosecution, allowance and/or abandonment of the application.

REMANDED

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